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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/786,411

**Applicant(s)**

ONO ET AL

**Examiner**

MON CHERI S. DAVENPORT

**Art Unit**

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/25/2008 has been entered.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-6** rejected under 35 U.S.C. 102(b) as being anticipated by O' Neill (US Patent Application Publication 2003/0018715).

Regarding **Claim 1** O' Neill disclose a packet relay device comprising:

a join request unit operable to transmit a join request to join a multicast group in response to receiving a join instruction to join the multicast group, the join instruction transmitted by a mobile node at least before the mobile node moves between subnetworks( *see figure 5, section 512, management operations, see paragraph [0013], lines 12-18, a PIM join is sent towards the originator, that sent the register message, the join arrives at the DR(designated router), see abstract, permitting a mobile host to roam in a foreign network, with multiple access node*

*handoffs, therefore, the join is sent before the mobile node moves between the subnetwork ) ;*  
and

a packet forwarding unit operable to forward subsequently received multicast packets for the multicast group for a specified time period to a care-of address in response to receiving location registration information containing the care-of address of the mobile node in a foreign subnetwork to which the mobile node has moved, the location registration information transmitted when the mobile node has moved between subnetworks(*see figure 5, section 518, forwarding operations), see paragraph [0015], lines 20-25, the CoA( care of address) is registered on the home network, and the HA tunnels arriving packets destined for the HoA towards the mobile Host , detunnels the packet and deliver the packets ).*

Regarding **Claim 2** O' Neill discloses everything as applied above (*see claim 1*). In addition the packet relay device includes:

wherein the packet forwarding means is further operable to stop forwarding of the multicast packets in response to receiving a forwarding stop instruction transmitted by the mobile node( *see paragraph [0013], lines 20-23, the RP sends register stop ( forward stop) messages periodically back to the DR to suppress register messages, see paragraph [0044] lines 6-13, setting the 'B' bit means messages should be sent back to the HA) ).*

Regarding **Claim 3** O' Neill discloses everything as applied above (*see claim 1*). In addition the packet relay device includes:

wherein the packet forwarding means is further operable to determine a forwarding time period for the multicast packets based on time period designation information in response to

receiving the time period designation information indicating a specified time period, the time period designation information transmitted by the mobile node( *see figure 5, section 516, forwarding information*), *see paragraph [0104], lines 6-9, generate forwarding information that may be used for forwarding operation, the time period to forward packets is forwarding information*).

Regarding **Claim 4** O' Neill discloses a mobile node comprising:

a join instruction unit operable to transmit join instructions to join a multicast group to a location registrar relay device, the location registrar relay device being the recipient of location registration information containing one's own care-of address, at least before the mobile node moves between subnetworks( *see figure 4, section 422, multicast group join/leave operations, see paragraph [0102], multicast facilities include the multicast group join/leave operations*), and

a forwarding request unit operable to transmit a forwarding request to the location registrar relay device, in response to the mobile node moving between subnetworks while participating in the multicast group, whereby multicast packets for the multicast group are subsequently received by the location registrar relay device to be forwarded for a time period to a care-of address of the mobile node after the move( *see figure 4, section 416, forwarding operations, see paragraph 0101, lines 3-11, forwarding operations that are used for reach ability information a home foreign network multicast policy, determination, information includes CoA( as well as a home agent broadcast indicator and a reverse tunnel indicator)*).

Regarding **Claim 5** O' Neill discloses everything as applied above (*see claim 4*). In addition the mobile node includes:

wherein the join instruction unit is further operable to:

transmit a join request to join the multicast group to a relay device in a subnetwork to which the mobile node is attached when the mobile node newly joins a multicast group; and transmit a join instruction to join the multicast group to the location registrar relay device( *see figure 7, section 760 and 765, join the outgoing interface to the multicast group, distribute the access router address as a source specific RPF( relay device) address* ).

Regarding **Claim 6** O' Neill discloses everything as applied above (*see claim 4*). In addition the mobile node includes:

further comprising a forwarding stop instruction unit operable to transmit to the location registrar relay device a forwarding stop instruction to stop forwarding of multicast packets by the location registrar relay device once multicast packets are received from a multicast group based on a join request after transmitting the join request to join the multicast group(*see paragraph [0094], lines 9-14, "B" bit is used to control the forwarding of the multicast signaling and data packet to and from the MN*) .

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 8, 9 and 12-14** rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill in view of Yu (US Patent Application Publication 2006/0224659).

Regarding **Claim 8** O' Neill discloses a packet forwarding method comprising the steps of:

notifying a home agent for a mobile node that receives multicast packets whether a foreign subnetwork to which the mobile node has moved is a multicast protocol compatible subnetwork( *see figure 7, section 705, does the access router support non-local multicast source address, see paragraph [0113], lines 24-43, if the foreign network is determined not to be a multicast router , then the multicast packets are tunneled to the rendezvous point node*);

encapsulating and forwarding, at the home agent, the multicast packets to a care-of address of the mobile node, based on content of the notification, the foreign subnetwork to which the mobile node has moved is a multicast protocol compatible subnetwork( ( *see figure 9, section 950, encapsulate to the FA from the Hoa address, see paragraph [0115], lines 17-26, this is encapsulated and forwarded for a time period as this function is not indefinite* ); and

encapsulating and forwarding, at the home agent, the multicast packets to the care-of address regardless of the specified time period if the foreign subnetwork is not a multicast protocol compatible subnetwork (*see figure 8, section 835 and 865, foreign is not compatible, tunnel instance of multicast packet to the home agent of the mobile node, packets are forwarded without respect to time, when mobile node is a non-member sender*).

O' Neill fails to specifically point out forwarding, at the home agent for a specified limited time period as claimed.

However Yu teaches forwarding, at the home agent for a specified limited time period (see [0146-0147], the multicast frame is sent, and TTL field is decremented limiting the forwarding time period).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine O' Neill invention with Yu invention because Yu invention provide a packet-based transport model to multiple services and multiple topologies( see Yu, [0013]).

Regarding **Claim 9** O' Neill discloses everything as applied above (*see claim 8*). In addition the packet forwarding method includes:

including information indicating whether the foreign subnetwork is multicast protocol compatible in a location registration message( *see paragraph [0113], lines 25-29, decision to determine if access router is a multicast router, if no, an instance copy of the packet is forwarded to the local designated DR of the multicast group*).

Regarding **Claim 12** O' Neill discloses a packet forwarding method comprising the steps of:

notifying a relay device to which a mobile node that receives multicast packets was connected in a subnetwork that the mobile node is moving from as to whether a foreign subnetwork to which the mobile node is moving is a multicast protocol compatible



subnetwork(*see paragraph [0117], lines 18-24, it is determined whether or not foreign multicast is used , see figure 11, section 1140, does mn policy mandate foreign multicast*)) );

encapsulating and forwarding, at the relay device, the multicast packets to a care-of address of the mobile node in the foreign network to which the mobile node has moved if, based on content of the notification, the foreign subnetwork to which the mobile node has moved is a multicast protocol compatible subnetwork( *see figure 11, section 1130, use foreign multicast, see figure 15, section 1565, encapsulated and forwarding to foreign agent to rendezvous point tunnel, this is encapsulated and forwarded for a time period as this function is not indefinite* ); and

encapsulating and forwarding, at the relay device, the multicast packets to the care-of address regardless of the specified time is period if the foreign subnetwork to which the mobile node has moved is not a multicast protocol compatible subnetwork( *see figure 13, section 1320b, persistent address to FA tunnel, see paragraph [0110], packets are encapsulated to the foreign agent from the persistent address mobile node packets are forwarded without respect to time, when mobile node is a non-member sender*).

O' Neill fails to specifically point out forwarding, at the home agent for a specified limited time period as claimed.

However Yu teaches forwarding, at the home agent for a specified limited time period (see [0146-0147], the multicast frame is sent, and TTL field is decremented limiting the forwarding time period).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine O' Neill invention with Yu invention because Yu invention provide a packet-based transport model to multiple services and multiple topologies( see Yu, [0013]).

Regarding **Claim 13** O' Neill discloses everything as applied above (*see claim 12*). In addition the packet forwarding method includes:

including information indicating whether the foreign subnetwork is multicast protocol compatible in a location registration message(*see paragraph [0113], lines 25-29, decision to determine if access router is a multicast router, if no, an instance copy of the packet is forwarded to the local designated DR of the multicast group*).

Regarding **Claim 14** O' Neill discloses a home agent comprising (*see figure 3*):

a binding cache operable to manage foreign locations of mobile nodes to be managed(*see figure 3, section 318, home/foreign multicast policy*);

a multicast packet forwarding processing unit operable to forward multicast packets(*see figure 3, section 332, multicast forwarding operations*); and

a packet processing unit operable to perform encapsulated forwarding of multicast packets when multicast packets can be received at a foreign location of a mobile node and to perform encapsulated forwarding of the multicast packets for a time regardless of the specified time period when multicast packets for a time regardless of the specified time period when multicast packets cannot be received at a foreign location of a mobile node (*see figure 14,*

*section 1465, encapsulated, foreign agent to home agent tunnel, see [0045], lines 1-8, the FA has the mobility state that tells it how to react to IGMP messages, the IMGP message ([0010]) will include instruction of specific time to forward encapsulated packets).*

O' Neill fails to specifically point out forwarding, at the home agent for a specified limited time period as claimed.

However Yu teaches forwarding, at the home agent for a specified limited time period (see [0146-0147]), the multicast frame is sent, and TTL field is decremented limiting the forwarding time period).

Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to combine O' Neill invention with Yu invention because Yu invention provide a packet-based transport model to multiple services and multiple topologies( see Yu, [0013]).

5. **Claim 7** rejected under 35 U.S.C. 103(a) as being unpatentable over O' Neill in view of Magret et al. (US Patent Number 6,804,221).

Regarding **Claim 7** O' Neill discloses everything as applied above (*see claim 4*). In addition the mobile node includes:

transmit information indicating that forwarding should be continued as the time period to the location registrar relay device when the subnetwork to which the mobile node has moved has no multicast packet delivery function(*see figure 7, section 715, see paragraph [0113], lines 24-*

***43, if the foreign network is determined not to be a multicast router , then the multicast packets are tunneled to the rendezvous point node).***

O' Neill fails to specifically point out further comprising a time period designation operable to transmit information indicating a specified period of time as the time period to the location registrar relay device when a subnetwork to which the mobile node has moved has a multicast packet delivery function as claimed.

Magret et al. teaches further comprising a time period designation operable to transmit information indicating a specified period of time as the time period to the location registrar relay device when a subnetwork to which the mobile node has moved has a multicast packet delivery function (Magret et al. see col. 16, lines 16-23, the mobile node set a timer when the registration lifetime ends, a new mobile IP registration message is triggered)

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine O'Neill invention with Magret et al, because Magret et al. invention support the "make before you break scheme, this principle is useful for voice communication (see Magret et al., Col. 8-9, lines 65-5).

**6. Claims 10 and 11** rejected under 35 U.S.C. 103(a) as being unpatentable over O' Neill in view Yu in further in view of Magret et al. (US Patent Number 6,804,221).

Regarding **Claim 10** O' Neill in view of Yu discloses everything as applied above (*see claim 8*). In addition the packet forwarding method includes:

O' Neill in view of Yu fails to specifically point out statically determining, at the home agent, the time period for performing encapsulated forwarding as claimed.

Magret et al. teaches statically determining, at the home agent, the time period for performing encapsulated forwarding (*see figure 9, section 203, see col. 16, lines 16-23, the mobile node set a timer when the registration lifetime ends*)

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine O'Neill invention in view of Yu with Magret et al, because Magret et al. invention support the "make before you break scheme, this principle is useful for voice communication (see Magret et al., Col. 8-9, lines 65-5).

Regarding **Claim 11** O' Neill in view of Yu discloses everything as applied above (*see claim 8*). In addition the packet forwarding method includes:

O' Neill in view of Yu fails to specifically point out indicating to the home agent, from the mobile node, that the time period that the home agent forwards multicast packets to the mobile node as claimed.

Magret et al. teaches indicating to the home agent, from the mobile node, that the time period that the home agent forwards multicast packets to the mobile node (*see figure 9, section 226 timer, see col. 14, lines 43-46, the timer for the emission on the neighbor binding update message send all BSRs information*)

#### ***Response to Arguments***

7. Applicant's arguments filed 6/25/2008 have been fully considered but they are not persuasive.

In the remarks on pgs. 7 and 8 of the amendment, the applicant contends that O'Neill does not teach or suggest "sending such a join from a mobile node, which is moving from a first subnet to a second subnet, before the mobile node makes such a move"

Examiner respectfully disagrees O'Neill teaches and permits a mobile host to roam in a foreign network, with multiple access node handoffs, while permitting foreign network multicasting([0040]). The join statement is sent into the multicast routing system to be added as a member of the group, which the mobile host can further roam as a group member ([0046]).

8. Applicant's arguments with respect to claims 8-14 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MON CHERI S. DAVENPORT whose telephone number is (571)270-1803. The examiner can normally be reached on Monday - Friday 8:00 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mon Cheri S Davenport/  
Examiner, Art Unit 2616  
September 23, 2008

/Ian N. Moore/  
Primary Examiner, Art Unit 2616